This project has received funding from the European Union's Horizon 2020 Research and Innovation programme under GA No 101004730.

WP9 project progress

Flash lamp processing of Nb-alloys

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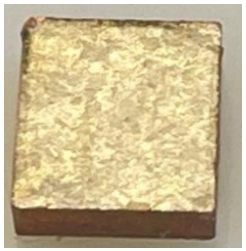
Samples

Nb-alloys grown by Reza Valizadeh - STFC UKRI:

Nb 8/04/21, Nb/AL/NbTiN 30/05/22, Nb/ALN/NbTiN 25/05/22,

Nb/NbTiN 28/04/22, Nb/NbTiN 20/05/22, NbTiN 3/03/22,

Cu substrate with Nb-alloys → FLA 3.2 ms/4.0 kV →



Nb-alloys grown by Thomas Proslier @ CEA:

AlN-NbTiN-6-1 on Si

Nb_3Sn on Cu grown by Cristian Pira at INFN

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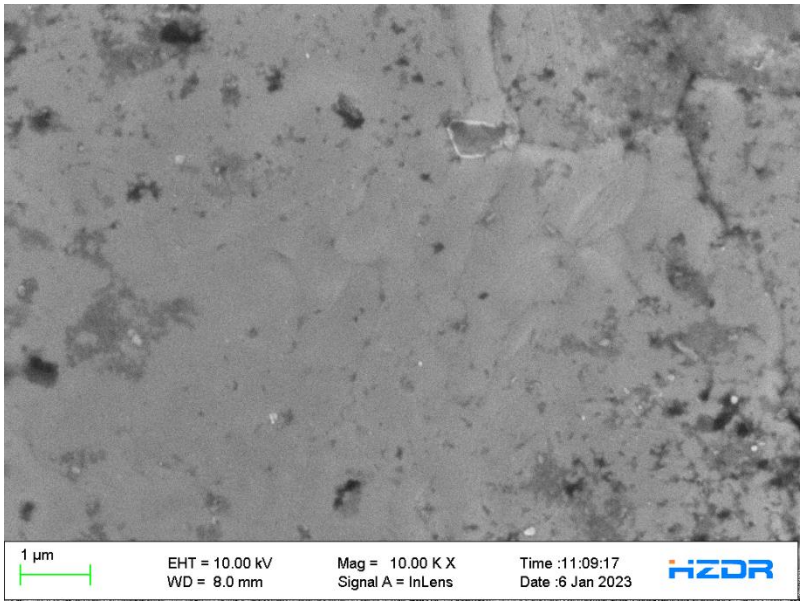
Characterisation techniques

- Sheet resistance
- SEM
- Rutherford Backscattering spectrometry
- SQUID

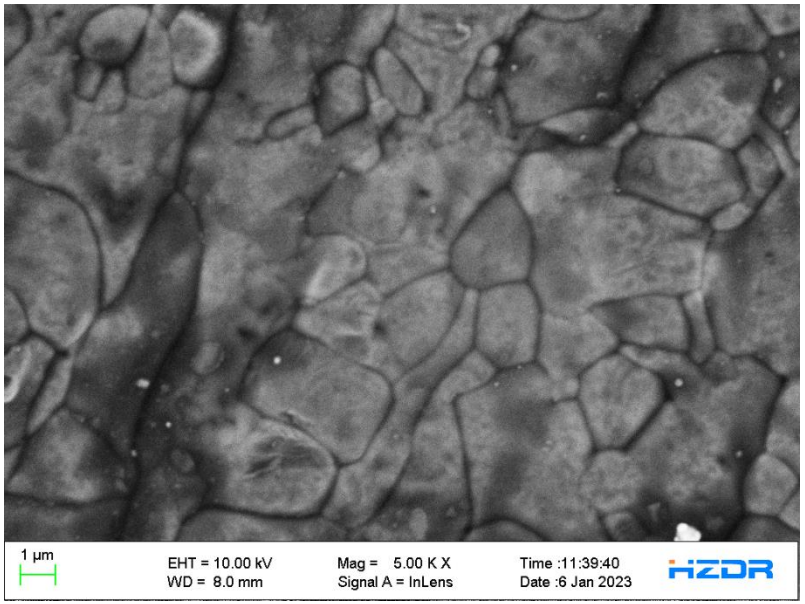
Nb-alloys grown by Reza Valizadeh - STFC UKRI

Nb 8/04/21

no annealing



FLA 3.2 ms/4.0 kV



SEM images of as-deposited and annealed Nb film on Cu substrate

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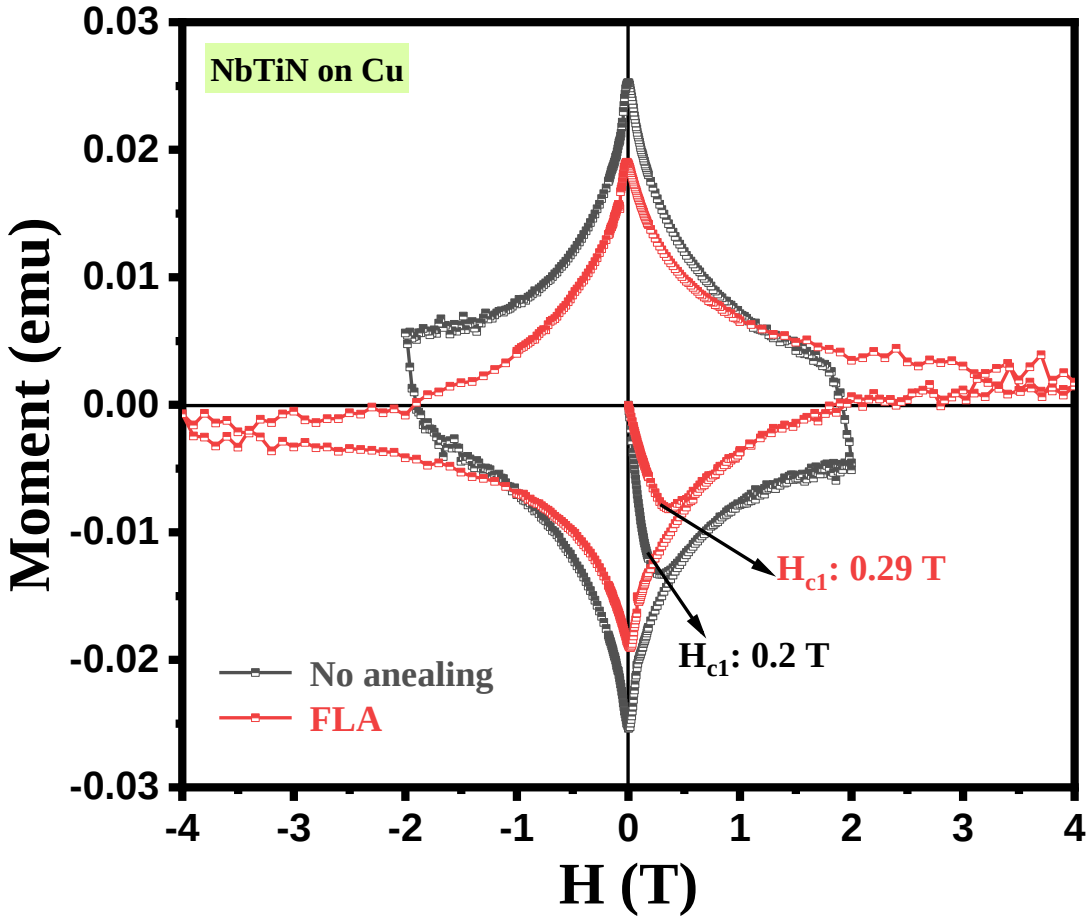
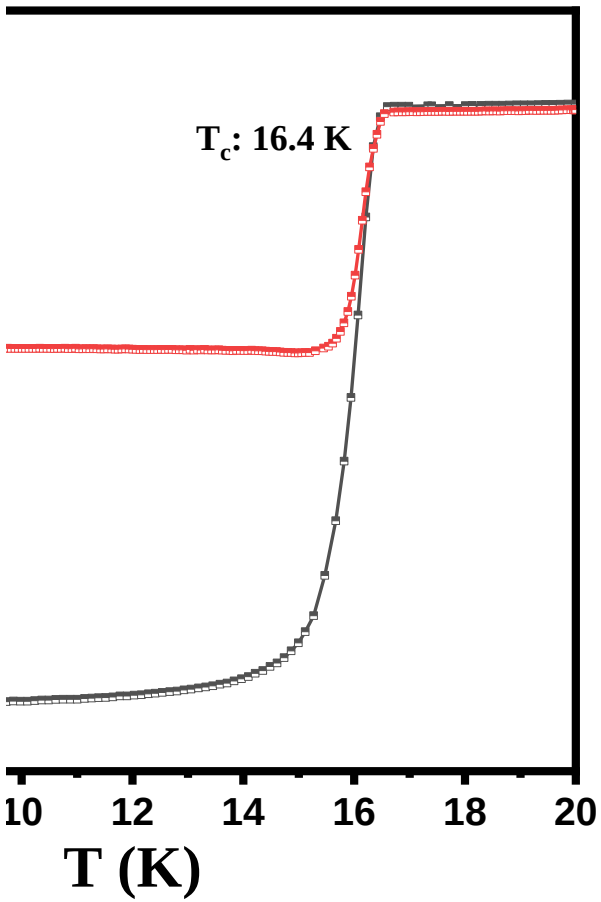
Nb-alloys grown by Reza Valizadeh - STFC UKRI

NbTiN 3/03/22





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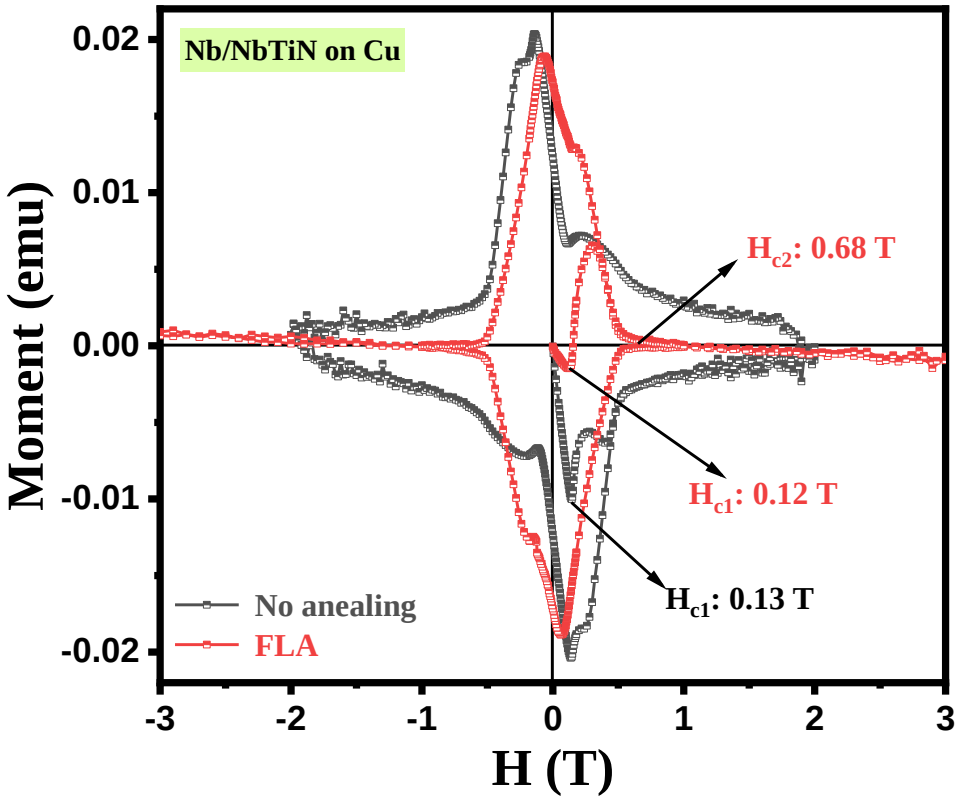
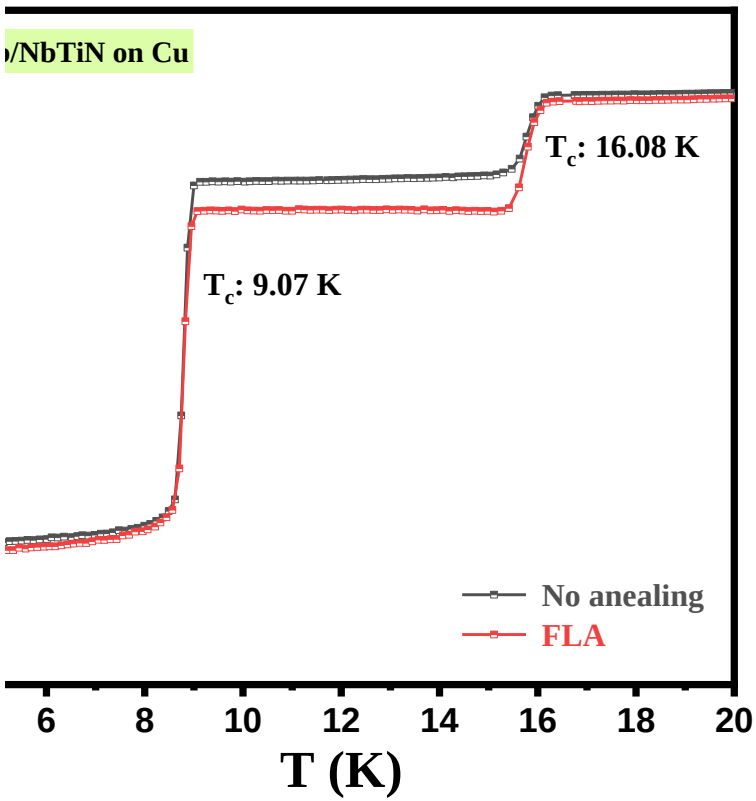
Nb-alloys grown by Reza Valizadeh - STFC UKRI

Nb/NbTiN 20/05/22





- After FLA H_{c2} decreases, H_{c1} no change

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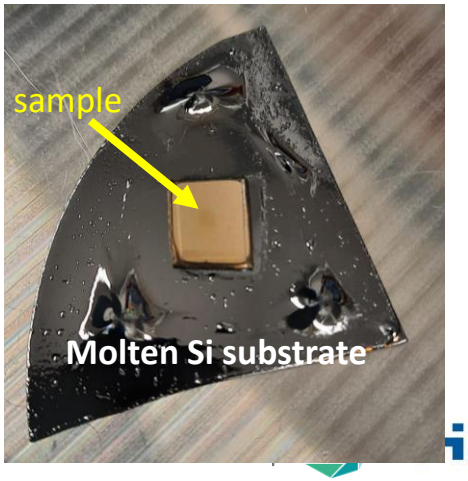
Nb-alloys grown by Thomas Proslier CEA

FLA of AlN-NbTiN on Si

- Preheating was done using halogen lamps.
- FLA time = 3 ms, 6 ms and 23 ms, all annealing was made in Ar flow

- Max temperature in silicon substrate is limited by the melting point of Si (about 1410 ºC)



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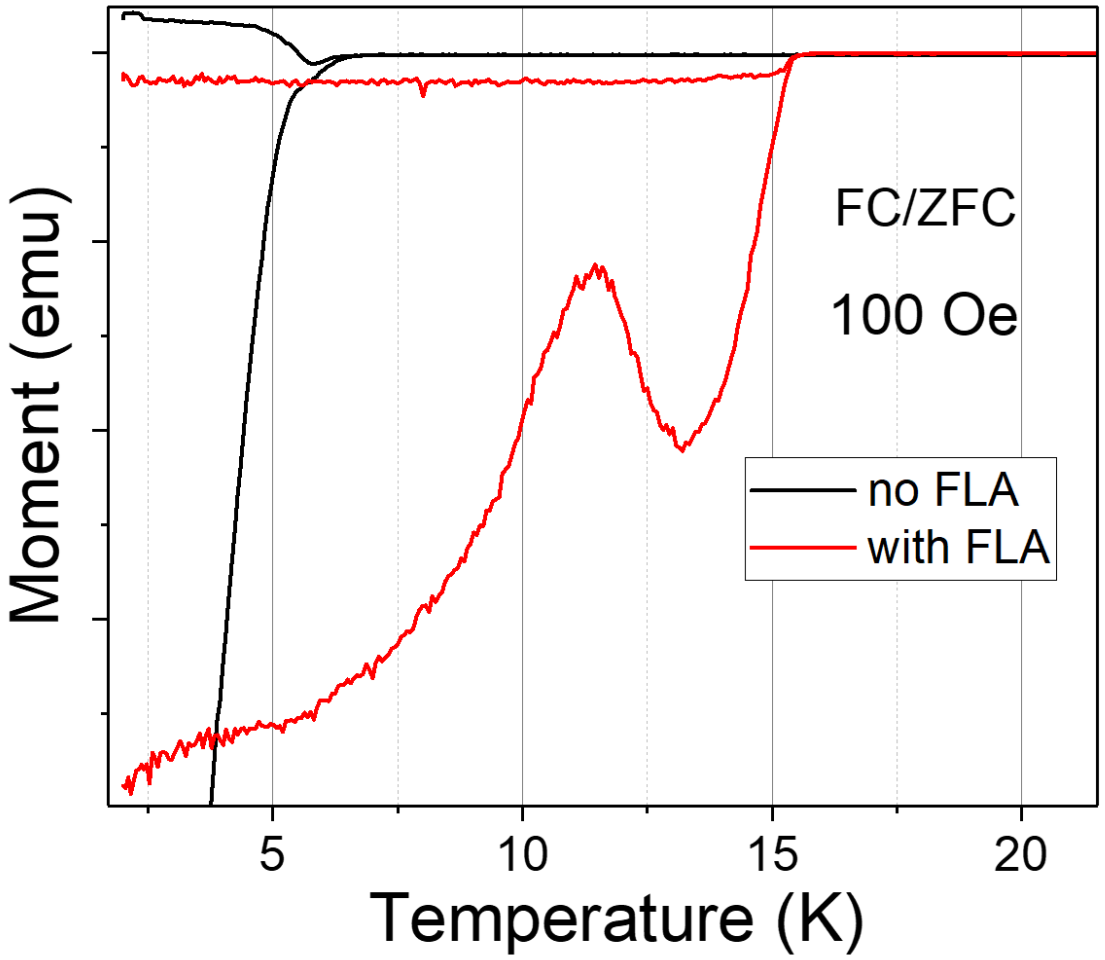
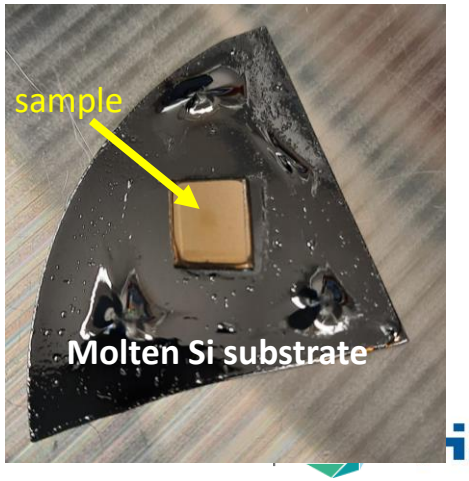
Nb-alloys grown by Thomas Proslier CEA

FLA of AlN-NbTiN on Si





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Nb_3Sn on Cu grown by Cristian Pira at INFN

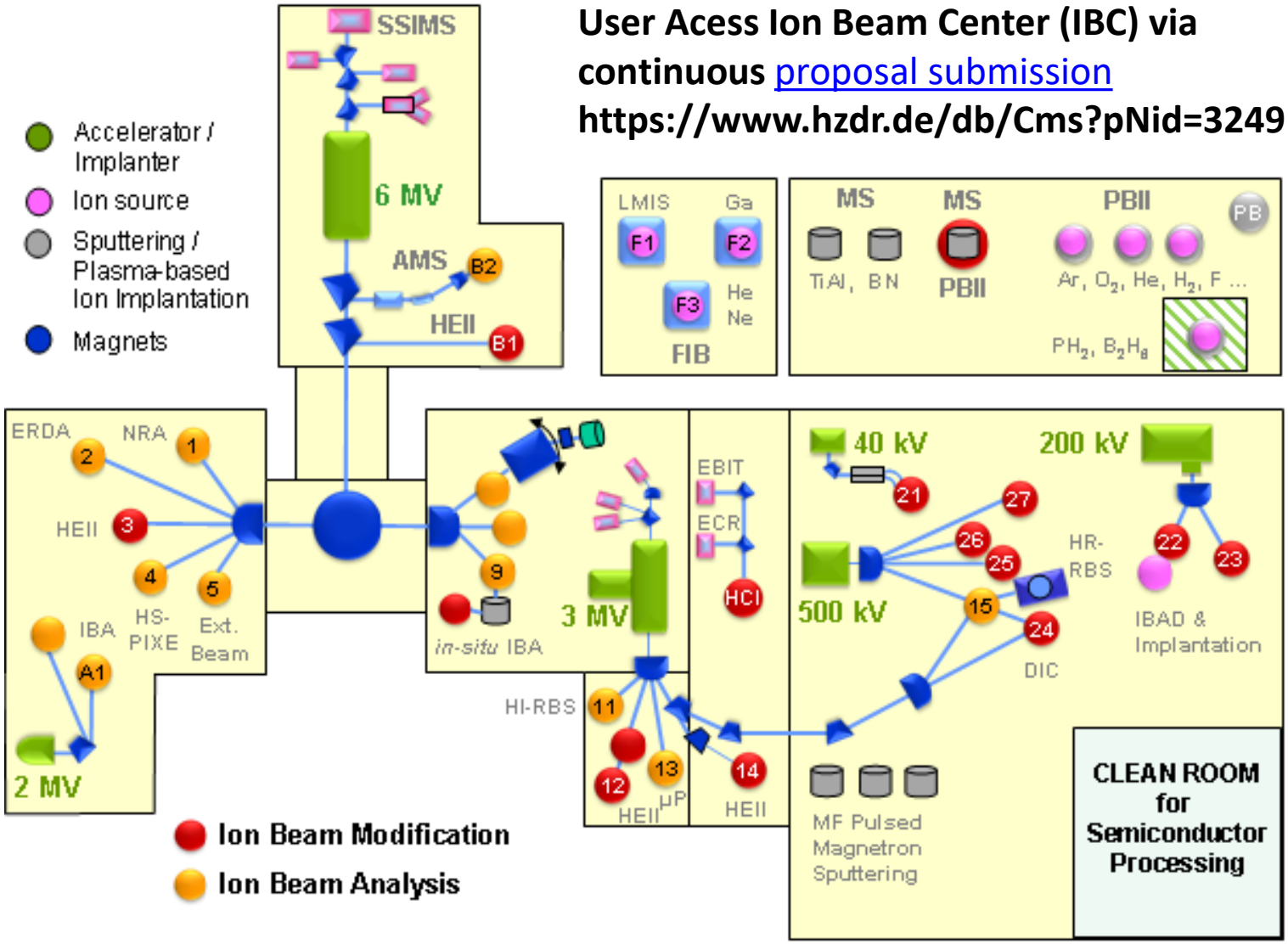
- Samples were measured using RBS

Details given by Cristian

New samples on Cu will be tested soon

Ion implantation at HZDR

User Acess Ion Beam Center (IBC) via continuous [proposal submission](https://www.hzdr.de/db/Cms?pNid=3249)



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Thank you

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